STATETEMENT

by Assoc. Prof. Dr. Tsvetanka Petrova Petranova, PhD,

"Department of Internal Medicine" and Clinic of Rheumatology of the University Hospital "St. Ivan Rilski",

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of dissertation for awarding the scientific degree "Doctor of Science"

Doctoral program "Rheumatology",

Professional field 7.1. Medicine,

Field of higher education 7. Health and sports

Department of Propaedeutics of Internal Medicine

Author: Dr. Elena Kirilova Kirilova, PhD

Topic: "Development of a specific national model for predicting osteoporotic fracture risk and assessment of bone mineral density of axial skeleton with radiofrequency echographic multi spectrometry (REMS)"

The presented set of materials on paper and electronic media for the preparation of this statement is in accordance with the Law on the Development of the Academic Staff of the Republic of Bulgaria, the Regulations of this law for application in MU Plovdiv and the procedure for acquiring scientific degree "Doctor of Science" in MU - Plovdiv, including all necessary documents.

Dr. Elena Kirilova graduated in medicine at the Medical Faculty of Thrakia University, Stara Zagora in 2016. After a doctorate at the Faculty of Medicine, Technical University of Dresden, Germany, she obtained a doctoral degree in 2018. Through a competition she was selected as an Assistant in Internal Medicine at the University of Burgas "Asen Zlatarov", where the scientific degree has been recognized. Dr. Kirilova is a Rheumatology resident at the University Hospital "Dr Georgi Stranski" in Pleven. She acquired a certificate for osteodensitometry with dual energy X-ray absorptiometry (DEXA) and an international certificate for osteodensitometry with REMS. She is fluent in English and German.

1. Relevance of the problem: The topic of the dissertation is relevant and significant. Osteoporosis is a socially significant disease characterized by deterioration of bone microarchitectonics and a consequent increase in bone fragility. However, the presence of patients with osteopenia and low-energy fractures leads to the inclusion of additional risk factors in addition to bone mineral density (BMD) in the fracture risk assessment. The most popular is the FRAX model for determining fracture risk in men and women by risk factors with or without BMD values. Dr. Elena Kirilova participates in the creation of the national "FRAX" model, which is officially published on the website of the University of Sheffield, on the basis of which every Bulgarian can assess his fracture risk by comparing the data entered by him with the data on the Bulgarian population, and not as before - with data on other nationalities. In addition, the author of the dissertation for the first time in Bulgaria performs osteodensitometry of the axial skeleton with an innovative ultrasound technique called "Radiofrequency echographic multi spectrometry (REMS)" and describes the results by creating specific models for predicting the T-score <-1 standard deviations (SD) and for predicting fracture risk "FRAX" ≥20% by REMS. The set goals and objectives are supported by the results and conclusions. The obtained data have an important application in everyday practice.

2. Knowledge of the problem: The author of the dissertation knows the problem in detail by evaluating the literary material on the basis of 478 literary sources, 8 of which are in Cyrillic and the rest in Latin.

3. Research methodology: The chosen methodology corresponds to the set goal and tasks. The statistical processing was done with a reliable statistical program SPSS version 19.

4. Characteristics and evaluation of the dissertation: The literature review is comprehensive and specific, covers 54 pages, is a systematized type of news on the issue and shows the author's ability to select and critically analyze literary sources.

The goal and tasks are presented on 1 page. The goal is clearly stated. The tasks are 11 and are defined in support of the main goal.

The section "Clinical material and methods" is written on 19 pages. The frequency of hip fractures in Stara Zagora region within the period between 2015-2017 was studied, as well as

osteodensitometry of the axial skeleton was performed in 324 women with the innovative REMS technology.

The results are presented on 41 pages, systematized logically and written sequentially. They are illustrated in tables, figures and graphs.

The chapter "discussion" consists of 23 pages and shows the author's ability to critically and eruditely discuss her own results with previous research.

I accept all conclusions and contributions made in the dissertation.

Dr. Kirilova meets the minimum requirements of the PP of ZRASRB

Group of indicators	Requirement for Doctor of Science according to regulations	Fulfilled points for Doctor of Science
A dissertation, Ph.D.	50	50
Б	-	-
B (published monograph) Indicator 3	100	100
Г-publications and reports	100	262,5
Д - citations	150	230

CONCLUSION: The dissertation contains significant, scientific-applied and applied results, which represent an original contribution to the medical science of determining the risk of osteoporosis. The requirements of ZRASRB and the Regulations for its application with the minimum requirements are met, as well as the criteria of the Regulation of MU Plovdiv for acquisition of the National Assembly. Due to the above, I confidently give my **positive evaluation** of the scientific work and **propose to the Scientific Jury to award the degree of "Doctor of Science"** in the Doctoral Program Rheumatology in the professional field 7.1. Medicine, 7. Health of Dr. Elena Kirilova Kirilova, Phd

18.05.2021

Assoc. Prof. Tsvetanka Petranova, PhD